

TORREYA

October, 1905

NOTES ON THE GRAY POLYPODY

BY IVAR TIDESTROM

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BOTANICAL
GARDEN*Marginaria polypodioides* (L.)*Acrostichum polypodioides* L. Sp. Pl. 1068. 1753.? *Polypodium virginianum* L. l. c. 1085. [Syn. Plumier only.]? *Polypodium ferruginosum* L. Sp. Pl., ed. 2, 1525. 1763.*Polypodium incanum* Swartz, Prodr. 131. 1788.*Polypodium ceteracinum* L. C. Rich; Michx. Fl. 2: 271. 1803.*Goniophlebium incanum* J. Sm. Jour. Bot. 4: 56. 1841.*Lepicystis incana* J. Sm. Cult. Ferns, 2. 1857.*Polypodium polypodioides* A. S. Hitchc. Rep. Mo. Bot. Gard. 4: 156. 1893.

The history of this little fern, its variations in form, and its geographical distribution, are of great interest to botanists.

The plant was without doubt first recorded by Plukenet [Phytogr. pl. 89. f. 9. 1691] under the name *Filicifolia* s. *Polypodium tenuifolium minus Virginianum*, and later enumerated in Almag. Bot. 153. 1696. Plukenet cites as a possible synonym "*Caticaa* s. *Polypodium Brasiliense Pisonis* [lib. iv., fol. 233] but since the latter author describes his plant as having "*caules cubitum alti*," its identity must be questioned.

Polypodium radice tenui & repente of Plumier [Descr. Pl. Am. 25. pl. 36. 1693, and Fougères de l'Amer. 60. pl. 77. 1705] reported from San Domingo, and *Polypodium minus*, etc. [Sloane, Cat. Pl. Jam. 16. 1696, and Nat. Hist. Jam. 1: 79. 1707] refer also to our plant. Plumier says of this fern "*J'ay rencontré plusieurs fois cette Plante dans les forests de l'isle Saint Domingue. C'est le petit Polipode à pinnules rares & cendrées par dessous du S. Sloane Cat. Plant. Jamaic. 16.*"

The name given to it by Morison [Pl. Hist. 3: 563. sec. 14.

[No. 9, Vol. 5, of TORREYA, comprising pages 155-170, was issued September 23, 1905.]

pl. 2. f. 5. 1715] is also characteristic: *Polypodium minus Virginianum foliis brevioribus subtus argenteis*; he says of his plant "Elegantem hanc speciem à Virginia acceptam habemus." It is recorded from this region also by Gronovius [Fl. Virg. 2: 198. 1743] who described it under the name *Acrostichum fronde pin-nata*, etc.

In 1753, Linnæus described the species under the name *Acrostichum polypodioides* but it is well-nigh certain that Plumier's synonym cited under *Polypodium virginianum* properly belongs here. Linnæus' remark, however, under the latter species, "antedecenti [i. e., *P. vulgare*] simillima, sed minor, & subtus glabra" pertains undoubtedly to some small form of *P. vulgare*, so common in the Potomac Valley and elsewhere. This view was held by the illustrious Willdenow, who makes this statement in regard to *P. virginianum*: * * * "Ex America boreali semper *P. vulgare* sub hoc nomine accipi." [Willd. Sp. Pl. 5: 174. 1810.]

The Jamaican plant described by Patrick Browne and named *Polypodium ferruginosum* by Linnæus [Sp. Pl., ed. 2, 1525. 1763] has been referred by later authors to the species in question.

Swartz described the species from the West Indies under the name *P. incanum* [Sw. Prodr. 131. 1788; Fl. Ind. Occ. 3: 1645. 1806; Syn. Fil. 35. 1806] giving as hab. "adnascitur truncis vetustis in montibus summis Jamaicæ."

We find the plant under still another name, *P. cetraccinum*, in the works of Michaux [L. C. Rich.; Michx. Fl. 2: 271. 1803] who records it as "parasiticum in Kentucky, Tennassée, Florida."

Bory de Saint-Vincent included the species in his genus *Marginaria* [Dict. Class. Hist. Nat. 6: 587. 1824; 10: 176. 1826], which name is evidently the earliest generic name for *Polypodium* species having scaly fronds and the sori along the margin. In 1828, the same author applies this generic name to one of his species *Marginaria minima* [Duperrey, Voy. 2¹: 264. pl. 31. f. 2. 1828] of which he says: * * * "très voisine de celle que les botanistes ont communément appelée *Polypodium incanum*, a été confondue avec elle. Elle en diffère cependant en ce qu'elle est trois ou quatre fois plus petite et d'un aspect bien plus élégant."

It is therefore quite evident that the generic concept of *Margi-
naria* Bory applies to such plants as the species in question

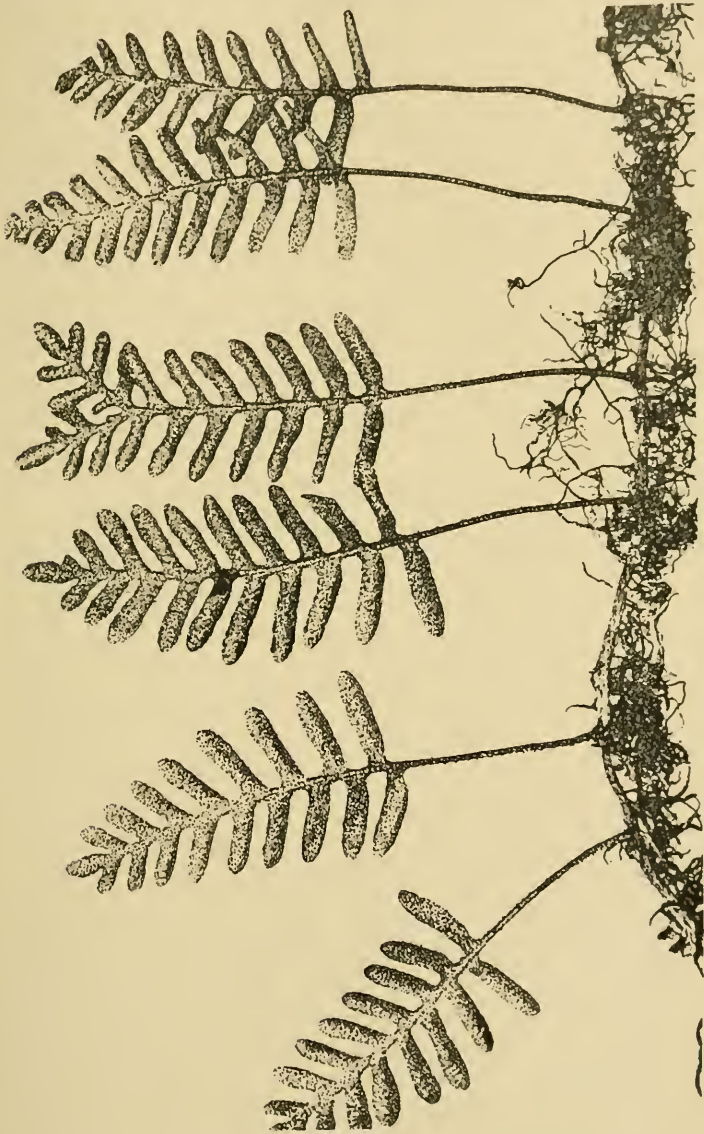


FIG. 1. The Gray Polypody, *Margiaria polypodioides*, from near Washington, D. C.

and, since this group has been recognized as distinct from the *Polypodia*, the genus *Margiaria* Bory merits recognition. J.

Smith referred this group to *Goniophlebium* (§ *Lepicystis*) [Jour. Bot. 4: 56. 1841.] and to genus *Lepicystis* in 1857 [J. Sm. Cult. Ferns 2]. The latter genus has been adopted by Diels [Engl. & Prantl, Nat. Pflanzenfam. 1¹; 322. 1899] but in a wider sense. In both instances, the scales on the surface of the frond serve as the principal distinguishing character.

The geographical range given for this species extends from the southern United States to Chile and Argentina, and in Africa from the Cape of Good Hope to the Zambesi region. The African plants do not seem to differ sufficiently from ours to merit a distinct specific name. The character upon which *Polypodium Eckloni* Kunze [Linnaea 10: 498. 1836] was founded do not seem to be constant, the frond being described as having the lowest pinnae longer than the upper ones and the upper surface of the frond devoid of scales ("supra nudis"). In our American plants the absence of scales on the upper surface of the frond is very uncommon. A few specimens collected in the United States agree perfectly with the description of *P. Eckloni*. In typical plants there are some differences, but apparently not sufficiently marked to warrant segregation. Perhaps when we have more material at hand and know the plants better, the African plant may prove to be a distinct species.

Specimens collected in Brazil and deposited in U. S. National Museum agree with the description of *Marginaria minima* Bory. In these the fronds are at the most 8 cm. high with the pinnae, except the uppermost, nearly of the same length [6 mm., more or less] and subopposite. There is also a marked difference in the scales, those of *M. minima* being acuminate.

Dr. Lindman [Arkiv för Botanik 1: 243. 1903] describes two forms of *P. incanum* from Brazil; one "*plantae parvae*" from Rio Grande do Sul, the other "*plantae maximae*" from Matto-Grosso. There is, therefore, some indication that typical plants are found at least as far south as Central Brazil.

Mr. A. Ernst [Jour. Bot. 3: 323. 1865] reports *P. incanum* growing "*on roofs of houses*" in Caracas, Venezuela. In Costa Rica it grows on coffee-trees [Tondus, 1904]. Mr. W. R. Maxon reports it from Jamaica, as common on rocks and trees

in open or partially shaded situations from the sea-level to about 5,000 feet altitude. Dr. J. K. Small [TORREYA 3: 141. 1903] reports it "from sea-level to almost 4,000 feet altitude on the eastern slopes of the Blue Ridge. * * * It is confined to trees only when rocks are lacking." Mr. C. L. Pollard [Plant World 5: 133. 1902] records a locality discovered by Mr. W. P. Hay, near the Potomac River and within fifteen miles of Washington, D. C.; this is possibly the most northern locality known for this fern. This little colony of plants, from which the figured specimen was taken, grows on a steep rocky slope; it consists of numerous plants matted together and covering many square feet of surface. In this respect it differs from another of the rock-loving ferns, *Cheilanthes lanosa*, which forms small clusters along the fissures of the rocks.

Our specimen is of interest also on account of its forking frond—a rare phenomenon in this species—which, may I state it, holds its own in beauty. *Cheilanthes lanosa* may possibly excel it as an ornament in its native haunts.

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THE ARTIFICIAL INDUCTION OF LEAF FÓRMATION IN THE OCOTILLO *

BY FRANCIS E. LLOYD

The post-pluvial appearance of foliage within a very short time upon desert plants which remain through periods of drought in a leafless condition is a phenomenon which has very often been remarked. The behavior in this regard is most striking in deserts, where there is prolonged lack of rain. Although in some regions the rain penetrates into the ground very rapidly, nevertheless it has seemed improbable to many, no doubt, that the absorption of this water from the soil alone gives the necessary stimulus to leaf formation. Led by this idea, attempts have been made to find in many of the superficial structures of plants the means for the absorption of water, or water vapor, and it may very well be

* This work was done at the Desert Botanical Laboratory, Tucson, Arizona, under a grant from the Carnegie Institution, of Washington, during the summer of 1905.